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APRIL 1.

The President, Dr. LEIDY, in the chair.

Thirty-one persons present.

A paper entitled " A Review of the American species of the Genus Trachynotus," by Seth E. Meek and David K. Goss, was presented for publication.

APRIL 8.

Rev. HENRY C. MCCOOK, D. D., Vice-President, in the chair.

Seventy-three persons present.

A paper entitled " Descriptions of new species of Terrestrial Mollusca of Cuba," by Rafael Arango, was presented for publication.

Dr. Daniel G. Brinton was inaugurated as Professor of Ethnology and Archæology, and delivered a lecture on " Prehistoric Man in America."

APRIL 15.

Mr. CHAS. P. PEROT in the chair.

Twenty-four persons present.

A paper entitled "A Review of the American species of the Genus Synodus," by Seth E. Meek, was presented for publication.

On the Process of Digestion in Salpa.—Dr. CH. S. DOLLEY remarked that preliminary to giving the full results of a somewhat extended study of the histology of *Salpa*, he desired to make a few remarks in reference to certain statements recently made by Dr. A. Korotneff of Moscow,[1] which he considered erroneous in so far as they indicate the presence of a huge amœboid cell or plasmodium, in the œsophagus and stomach of *Salpa*, functioning as a digestive organ. Dr. Korotneff describes this cell as arising from the repeated division of a single cell which early in the life-history of the animal is separated from the intestinal wall. This giant-cell or plasmodium, acting like a huge rhizopod, carries on a form of parenchymatous digestion of the food taken by the animal, passing the resulting chyle into the walls of the intestine by means of its pseudopodia. Now by reference to an article by Metschnikoff "On Intracellular Digestion in Invertebrates" (in the Quarterly Journal of Microscopical Science for January, 1884), it will be seen that such a form as Korotneff describes has never been met with, and his description stands alone and anomalous, both as regards the situation and size of the digestive plasmodium, and as to the method of its formation, for in all cases in which such structures have been found in invertebrates, they have always arisen by the fusion of separate cells, not from the repeated division of one cell. In a large number of series of sections made by the new "ribbon" method, the speaker was not only unable to find "the lumen obliterated" by the peculiar structure of the wall of the intestine described by Korotneff, but in a model of the visceral nucleus made after Born's "plattenmodillir method" the lumen of the entire intestinal canal is shown to be completely free throughout. He did, however, get sections which gave pictures almost identical with those portrayed by Korotneff, *i.e.* the lumen filled with what he describes as a large nucleated granular cell, containing various food particles, and he could trace this so-called "cell," not only back into "the portion of the intestine lying next to the stomach," but through the rectum into the cloacal chamber, and through the œsophagus into the branchial sac. He accounts for it as follows: The endostyle of *Salpa* has been very carefully studied by Hermann Fol, who demonstrated, by means of carmine suspended in water, that it threw out a constant stream of mucus when excited by the presence of nutritive material in the same water, with a reflex action like a salivary gland. The mucus is, by an arrangement of cilia, spread out like a curtain over the inner surface of the branchial sac, when it acts as a means for catching the food particles from the ingurgitated water. By the action of ciliary bands bordering the groove of the endostyle, the mucus is swept towards the œsophagus, and as it approaches this, it is, by means of the stiff cilia on the sides of the gill, twisted into a thread, and carried by a continuation of the aforesaid bordering bands, through the œsophagus, into the stomach. Now in studying a series of sections of a Salpa which had had abundant food, we find as we approach the œsophagus a mass of material answering to the description of Korotneff's "rhizopod." It takes staining readily and may be traced backward into and through the œsophagus, stomach and intestine. As the sections approach the rectum, however, the mass gradually ceases to take staining, and is much more distinctly marked out from the intestinal wall, having had all the organic matter digested out, and consisting only of the inorganic remains, which do not stain. The alimentary matter of Salpæ is composed of animal and vegetal elements in nearly equal proportions, and the microscope reveals the calcareous shells of Foraminifera, the beautifully sculptured frustules of Diatomaceæ, keen siliceous needles, and the sharp armatures of minute crustacea.

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[1] *Ueber die Knospung der Anchinia* in Zeitschr. f. wiss. Zoologie. Bd. 40, Hft. i, 1884.

In the fore-part of the intestinal canal, the food mass, staining almost as readily as the wall of the gut itself, seems to merge into the ill-defined epithelium of the latter, and it is scarcely possible to say where the food-bearing mucous thread ceases and the intestinal epithelium begins, especially as this latter has a rugous arrangement. That we have here to do with a form of digestion entirely anomalous and unprecedented, he could not believe, and must beg leave to differ from Dr. Korotneff on this point. Fol and others have recognized the endostyle as a sort of salivary gland, and have traced its food-laden mucous thread into the stomach of the living animal, while the speaker had been able to trace the same thing in well-preserved specimens. He had also several series of sections from animals which must have been without food for some time previous to death, in which the lumen of the intestine is not only free of food, but of any obliterating mass of cells, or plasmodium. The only protoplasmic bodies not food, are certain Gregarina-like organisms adhering to the walls of various parts of the intestine, and which he took to be parasites. These give on section the appearance of the large "scattered cells, entirely free from their surroundings" which Korotneff figures and regards as "analogous to the great stomach-cell of *Anchinia.*" The first opportunity would be taken to examine these structures in living Salpæ, but he was now forced to conclude that Dr. Korotneff has endowed the food-bearing mucous thread with a power it does not possess, that *Salpa* does not exhibit any unusual form of intracellular digestion, and that there is no immediate cause on its account for questioning the high genetic place occupied by the Tunicates.

A Preliminary Note on a Reaction common to Peptone and Bile-salts.—Dr. N. A. Randolph stated that if the acid nitrate of mercury (Millon's reagent) be added to a cold aqueous solution of potassium iodide, a *red* precipitate of mercuric iodide always appears. When, however, either peptones or the biliary salts are present in noteworthy amount, the precipitate of nascent mercuric iodide assumes the *yellow* phase. As practically applied, the red may vary from salmon to scarlet, the yellow from pale lemon to orange.

In order to render the test sensitive to the presence of minute quantities of the substances in question, he had found it necessary to limit the amount of potassium iodide employed. Thus to each five cubic centimetres of the suspected fluid—which must be cold and either neutral or faintly acid—are added two drops of a saturated solution of potassium iodide, the two liquids being well mixed. Four or five drops of Millon's reagent are now added, the contents of the vessel thoroughly stirred or shaken. Under these